Sea Warrior

Enterprise Architecture Approach

- Case Study: Developing a Component of FORCEnet

IT SWAT

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Agenda

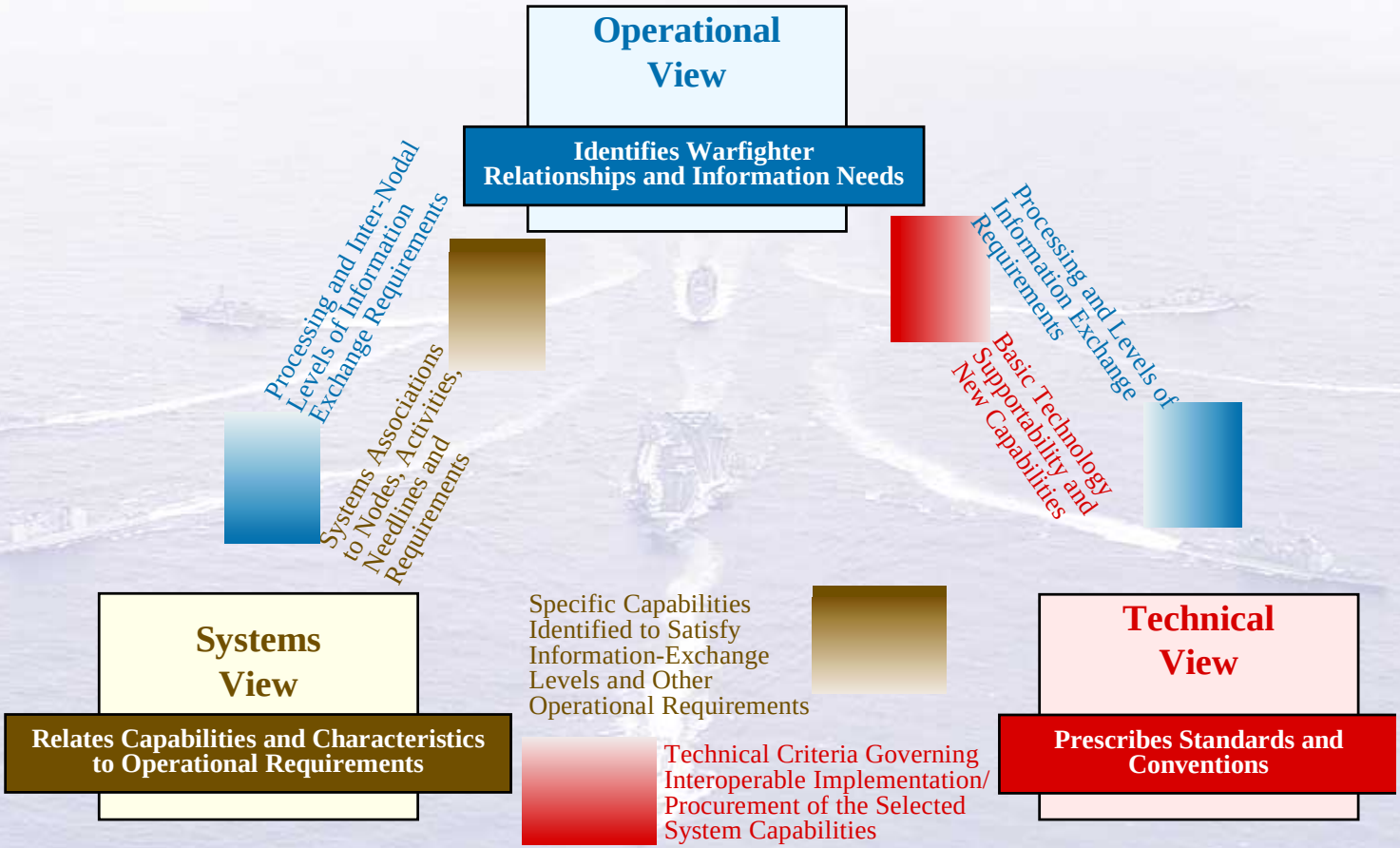
- Architecture Plan
  - DoDAF / ABM
- Architecture Development
  - Operational/Systems Views
  - Portfolio Management
- Architecture Execution
  - POM 08
  - Risk
  - Issues, Barriers

Why Enterprise Architecture

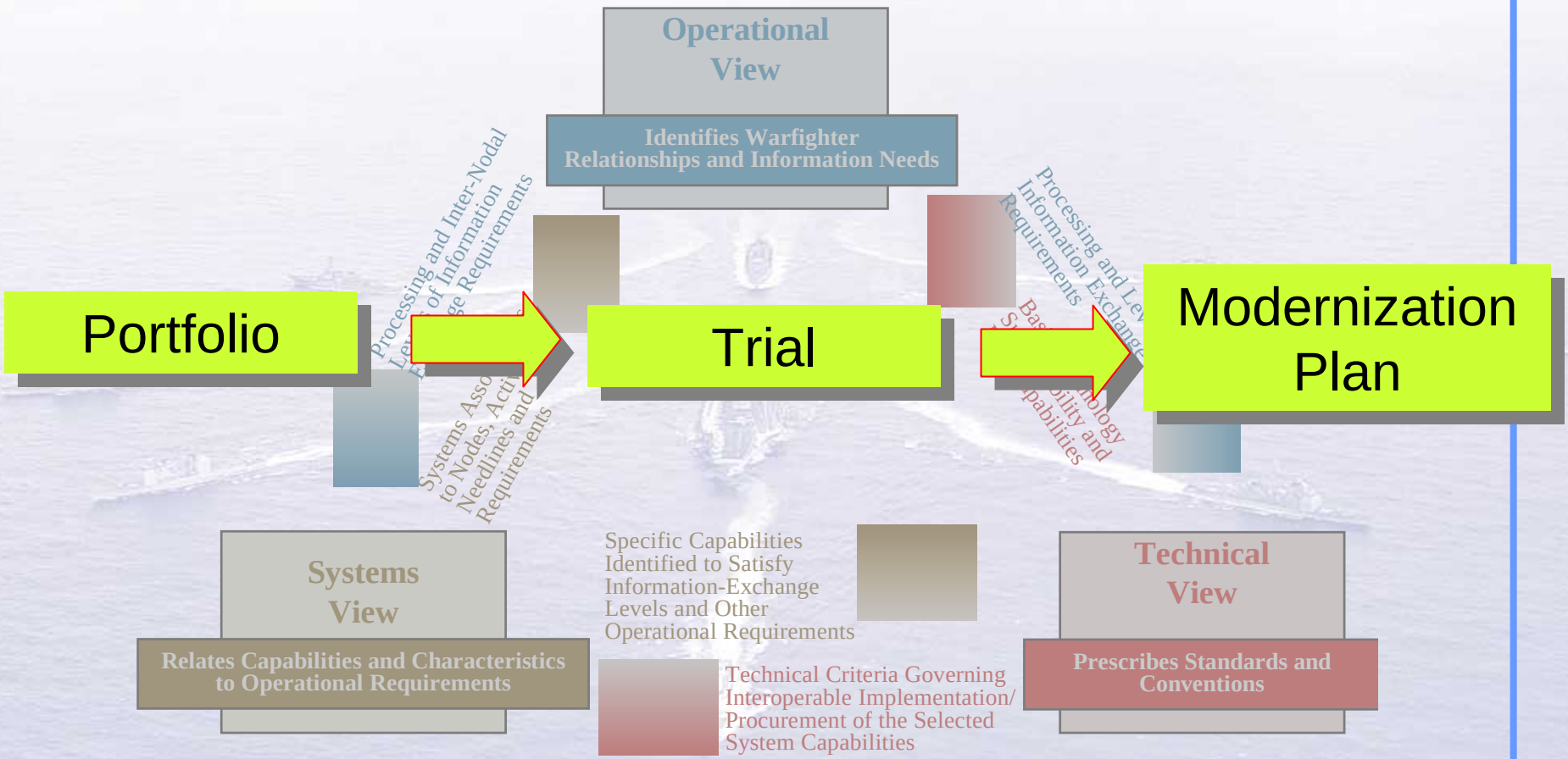
- Structured delivery of capability
- Reveals business gaps
- Disciplined investment strategy
- Compatibility via standards

Architecture = **Structure of Components** + **Relationships** + **Principles & Guidelines**

One Architecture – Multiple Views



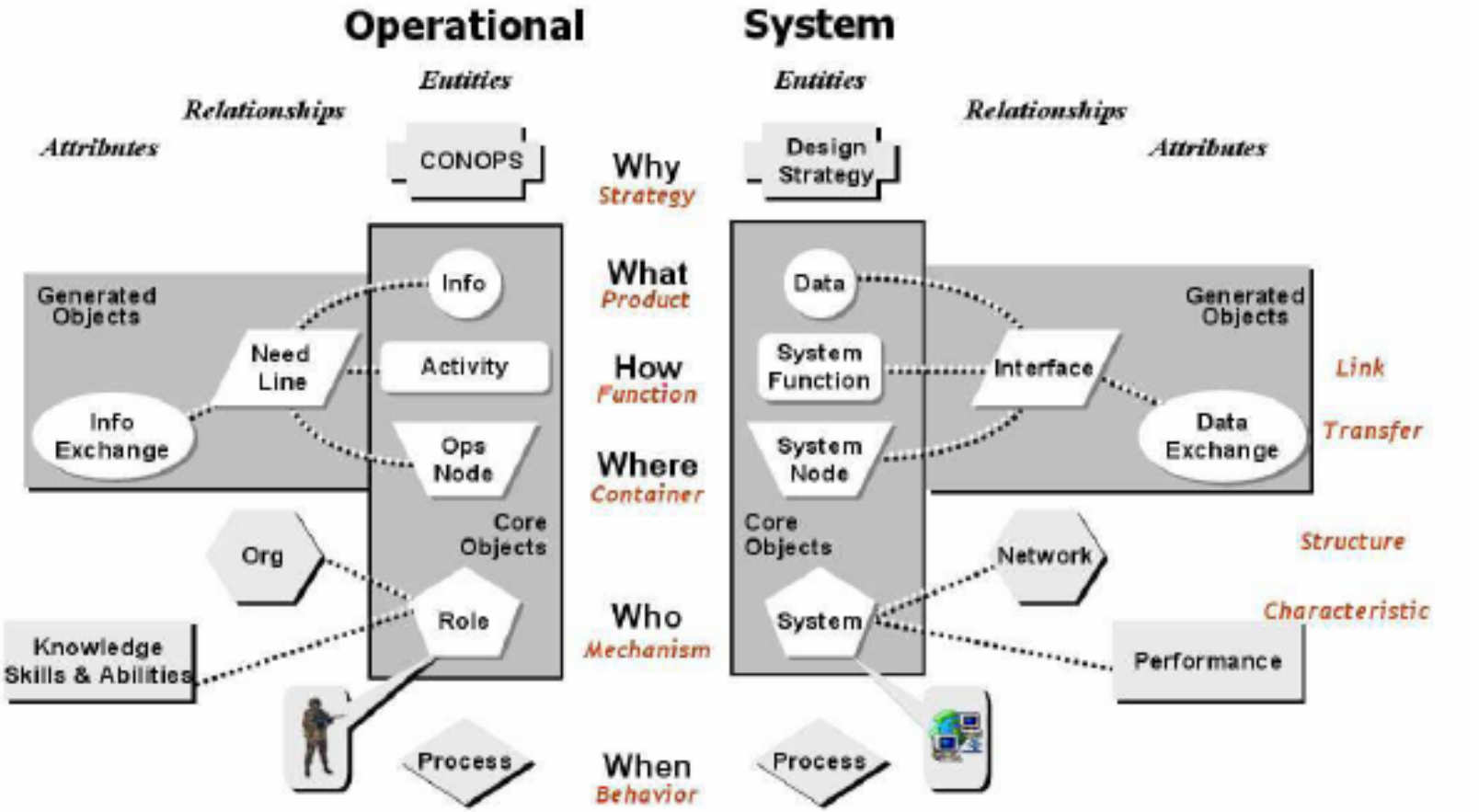
One Architecture – Multiple Views



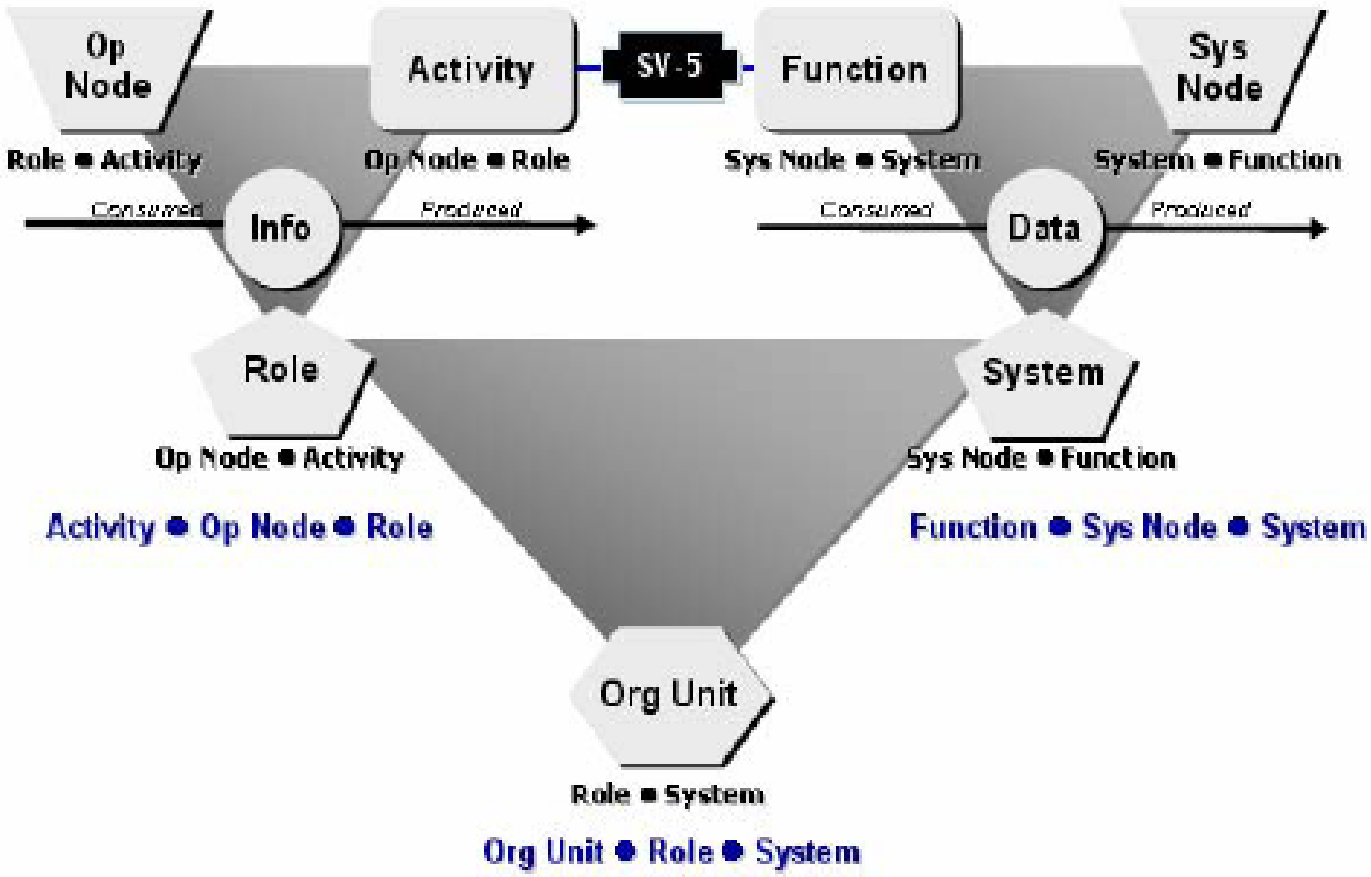
Disciplined Design

Applicable View	Framework Product	Framework Product Name	General Description
All Views	AV-1	Overview and Summary Information	Scope, purpose, intended users, environment depicted, analytical findings
All Views	AV-2	Integrated Dictionary	Architecture data repository with definitions of all terms used in all products
Operational	OV-1	High-Level Operational Concept Graphic	High-level graphical/textual description of operational concept
Operational	OV-2	Operational Node Connectivity Description	Operational nodes, connectivity, and information exchange needlines between nodes
Operational	OV-3	Operational Information Exchange Matrix	Information exchanged between nodes and the relevant attributes of that exchange
Operational	OV-4	Organizational Relationships Chart	Organizational, role, or other relationships among organizations
Operational	OV-5	Operational Activity Model	Capabilities, operational activities, relationships among activities, inputs, and outputs; overlays can show cost, performing nodes, or other pertinent information
Operational	OV-6a	Operational Rules Model	One of three products used to describe operational activity—identifies business rules that constrain operation
Operational	OV-6b	Operational State Transition Description	One of three products used to describe operational activity—identifies business process responses to events
Operational	OV-6c	Operational Event-Trace Description	One of three products used to describe operational activity—traces actions in a scenario or sequence of events
Operational	OV-7	Logical Data Model	Documentation of the system data requirements and structural business process rules of the Operational View
Systems	SV-1	Systems Interface Description	Identification of systems nodes, systems, and system items and their interconnections, within and between nodes
Systems	SV-2	Systems Communications Description	Systems nodes, systems, and system items, and their related communications lay-downs
Systems	SV-3	Systems-Systems Matrix	Relationships among systems in a given architecture; can be designed to show relationships of interest, e.g., system-type interfaces, planned vs. existing interfaces, etc.
Systems	SV-4	Systems Functionality Description	Functions performed by systems and the system data flows among system functions
Systems	SV-5	Operational Activity to Systems Function Traceability Matrix	Mapping of systems back to capabilities or of system functions back to operational activities
Systems	SV-6	Systems Data Exchange Matrix	Provides details of system data elements being exchanged between systems and the attributes of that exchange
Systems	SV-7	Systems Performance Parameters Matrix	Performance characteristics of Systems View elements for the appropriate time frame(s)
Systems	SV-8	Systems Evolution Description	Planned incremental steps toward migrating a suite of systems to a more efficient suite, or toward evolving a current system to a future implementation
Systems	SV-9	Systems Technology Forecast	Emerging technologies and software/hardware products that are expected to be available in a given set of time frames and that will affect future development of the architecture
Systems	SV-10a	Systems Rules Model	One of three products used to describe system functionality—identifies constraints that are imposed on systems functionality due to some aspect of systems design or implementation
Systems	SV-10b	Systems State Transition Description	One of three products used to describe system functionality—identifies responses of a system to events
Systems	SV-10c	Systems Event-Trace Description	One of three products used to describe system functionality—identifies system-specific refinements of critical sequences of events described in the Operational View
Systems	SV-11	Physical Schema	Physical implementation of the Logical Data Model entities, e.g., message formats, file structures, physical schema
Technical	TV-1	Technical Standards Profile	Listing of standards that apply to Systems View elements in a given architecture
Technical	TV-2	Technical Standards Forecast	Description of emerging standards and potential impact on current Systems View elements, within a set of time frames

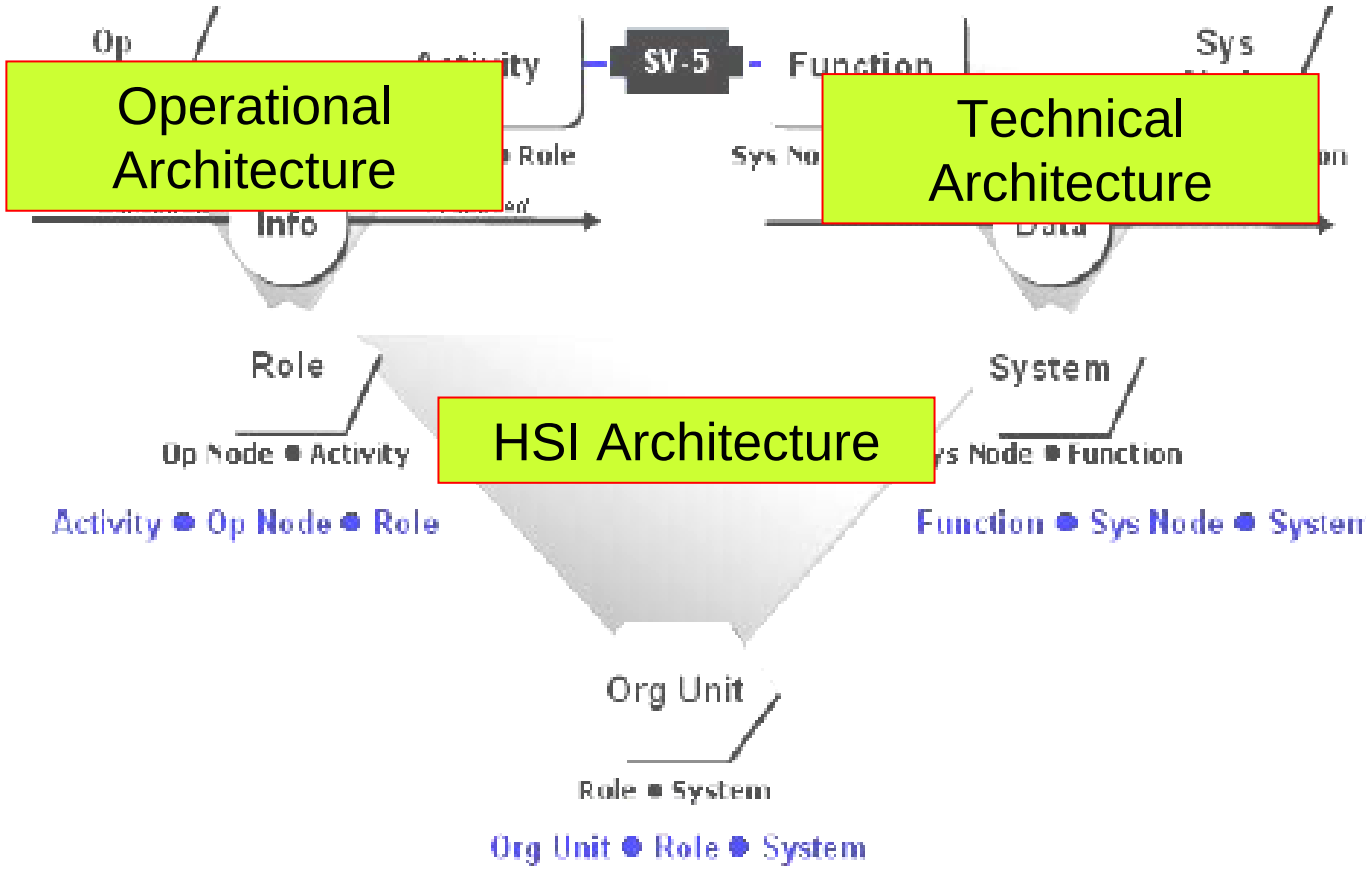
Relevant to the Business of SW



Relational Design



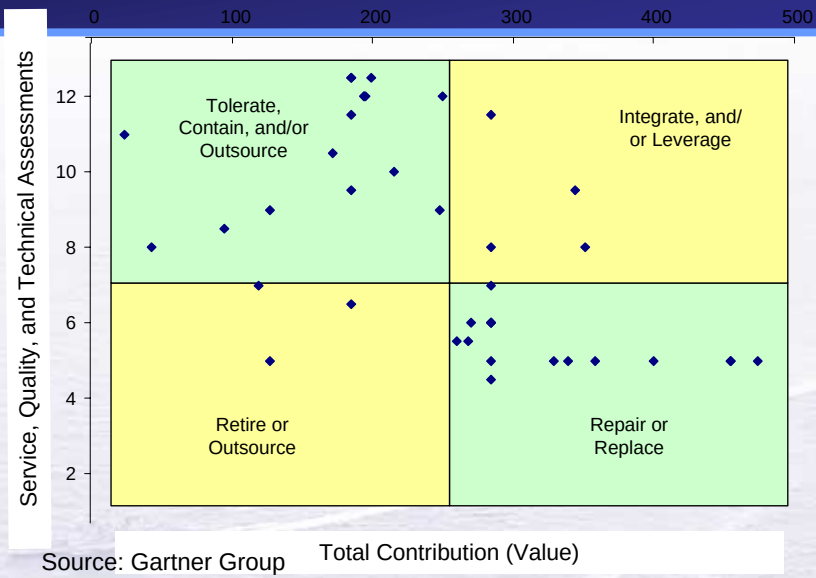
Drives Business Architecture



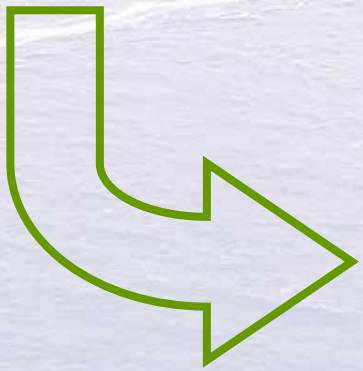
DOTMLPF

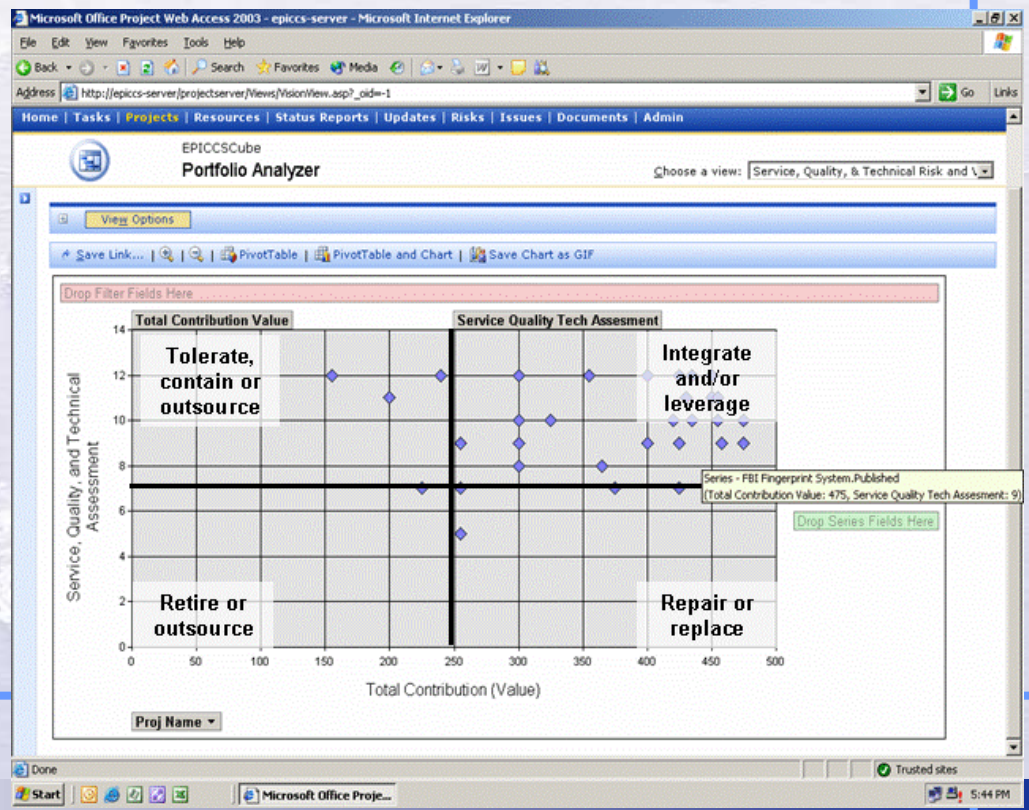
Doctrine	Activities, Roles, Operational Nodes
Organization	Org Units
Training	Roles, Systems
Leadership	Org Units, Roles, Systems
Material	System Functions, Systems, System Nodes
Personnel	Roles
Facilities	Operational Nodes, System Nodes

Portfolio Analysis -Technical Risk/Value

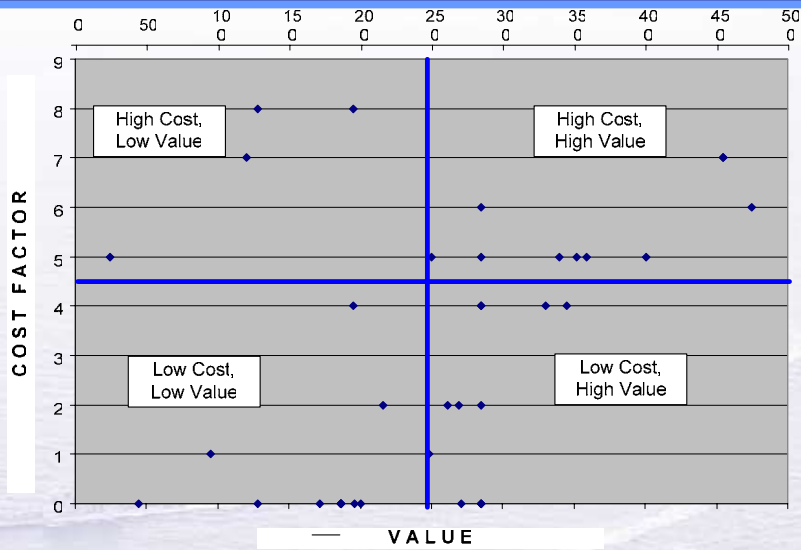


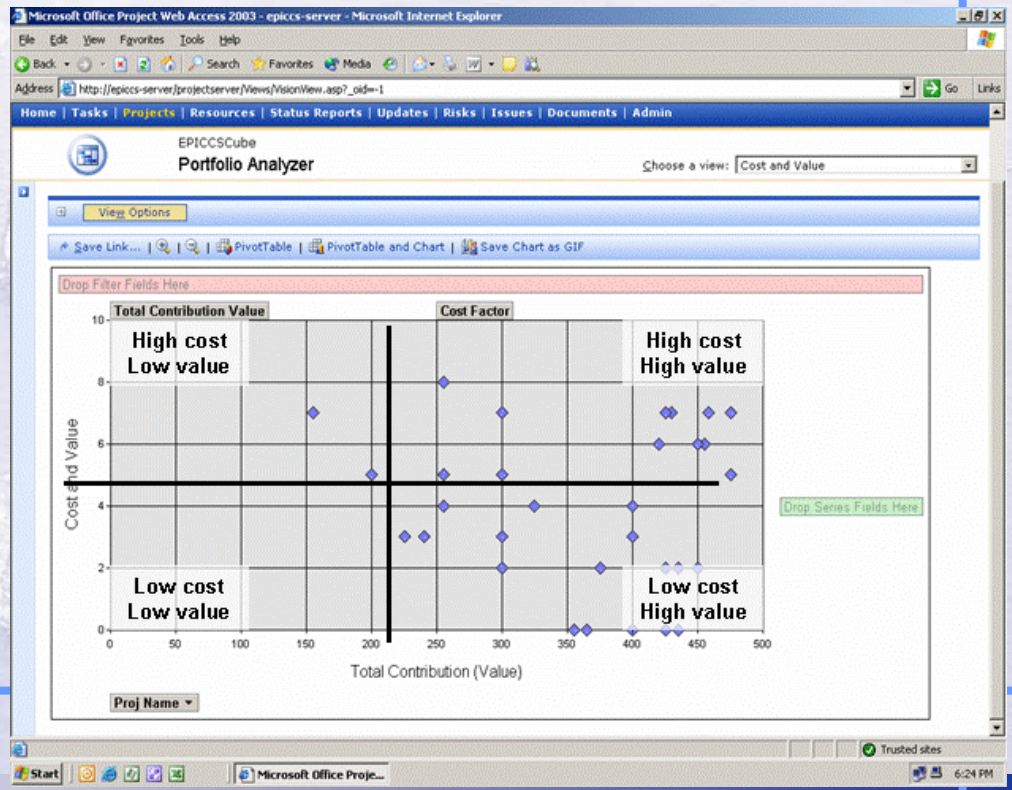
Source: Gartner Group





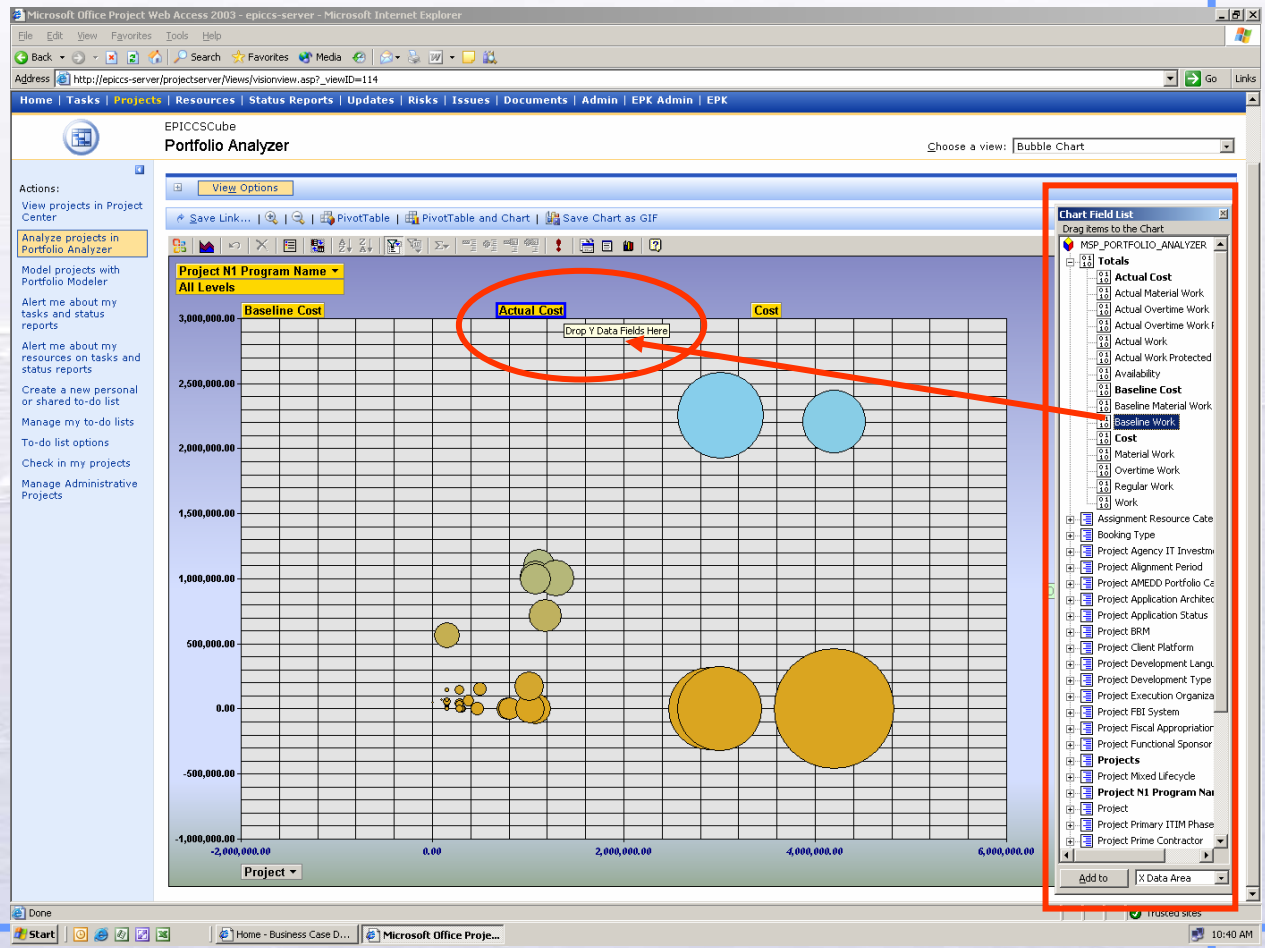
Portfolio Analysis -Cost/Value



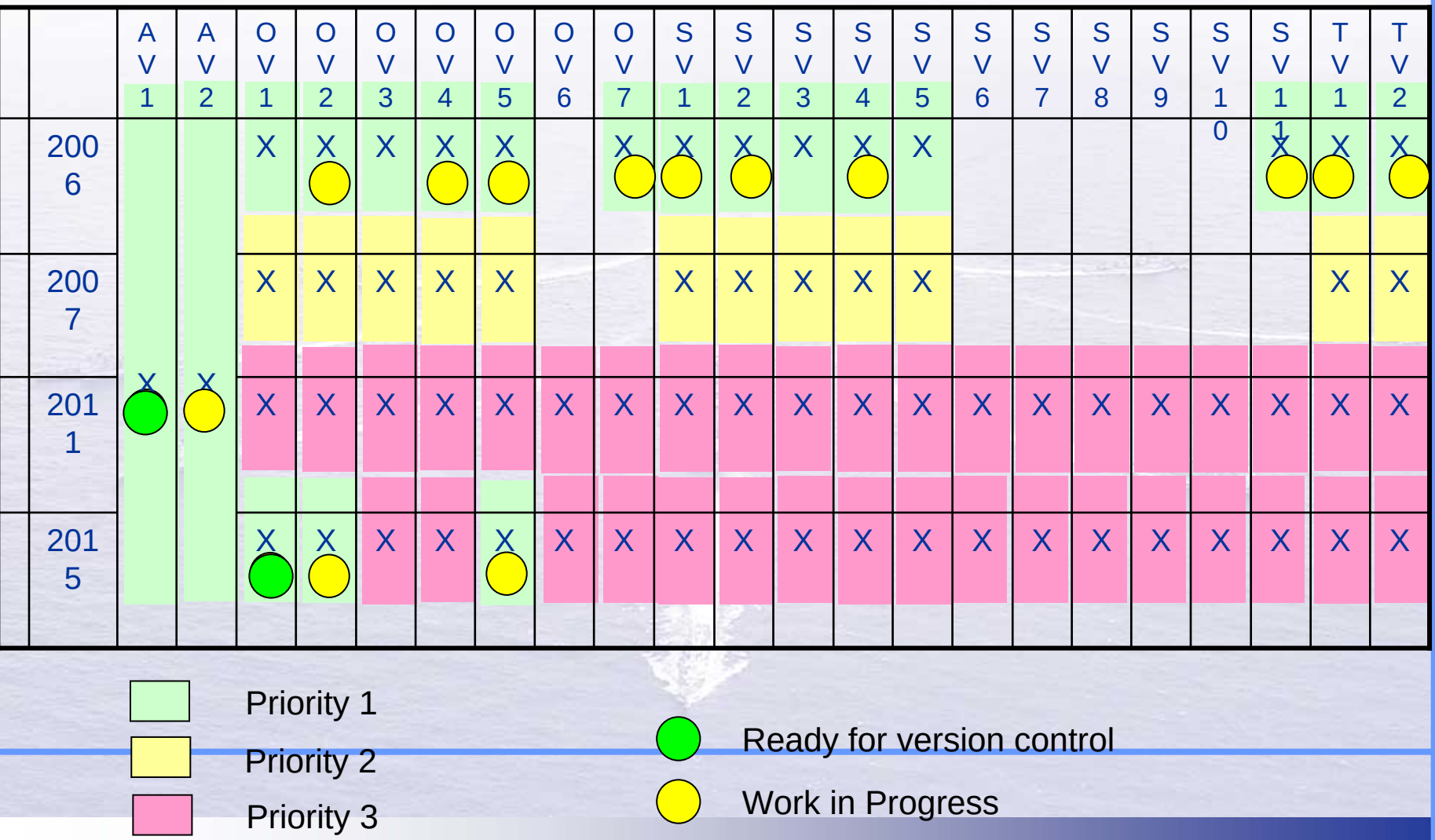


Business Investment Strategy

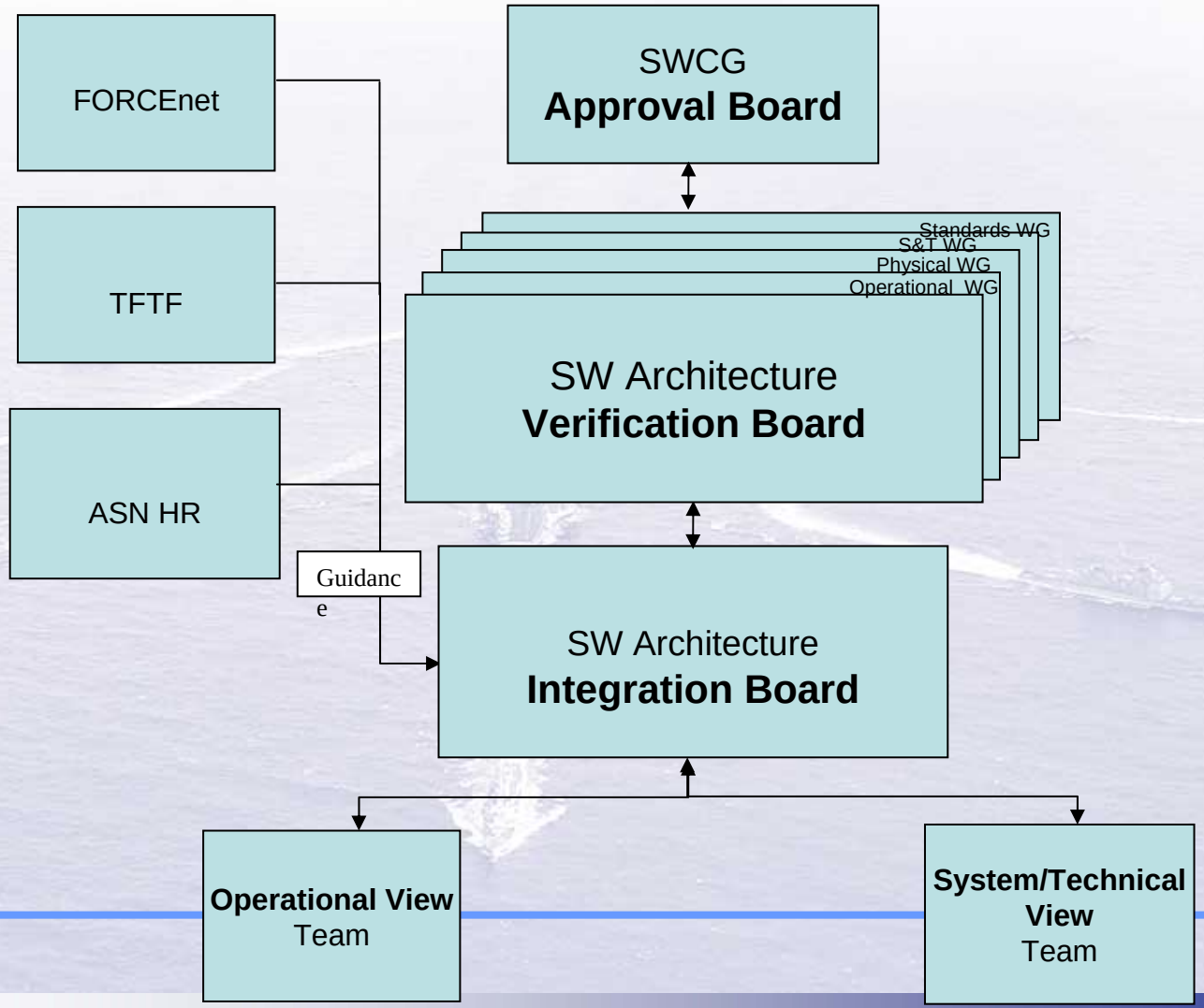
- **N1 and NETC tools**
- **Data visibility**
- **Business functional leads make value judgments**



Development Status

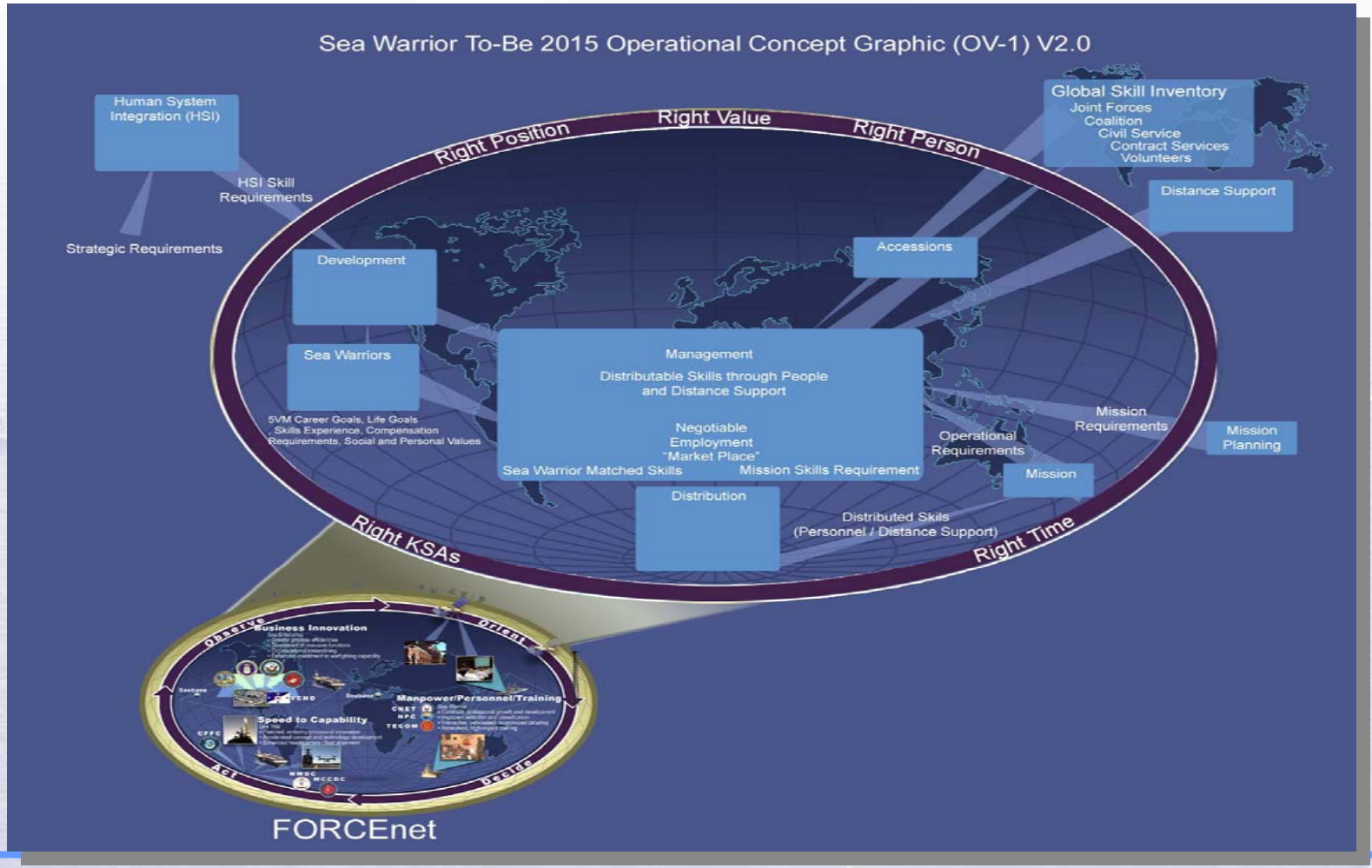


Governance

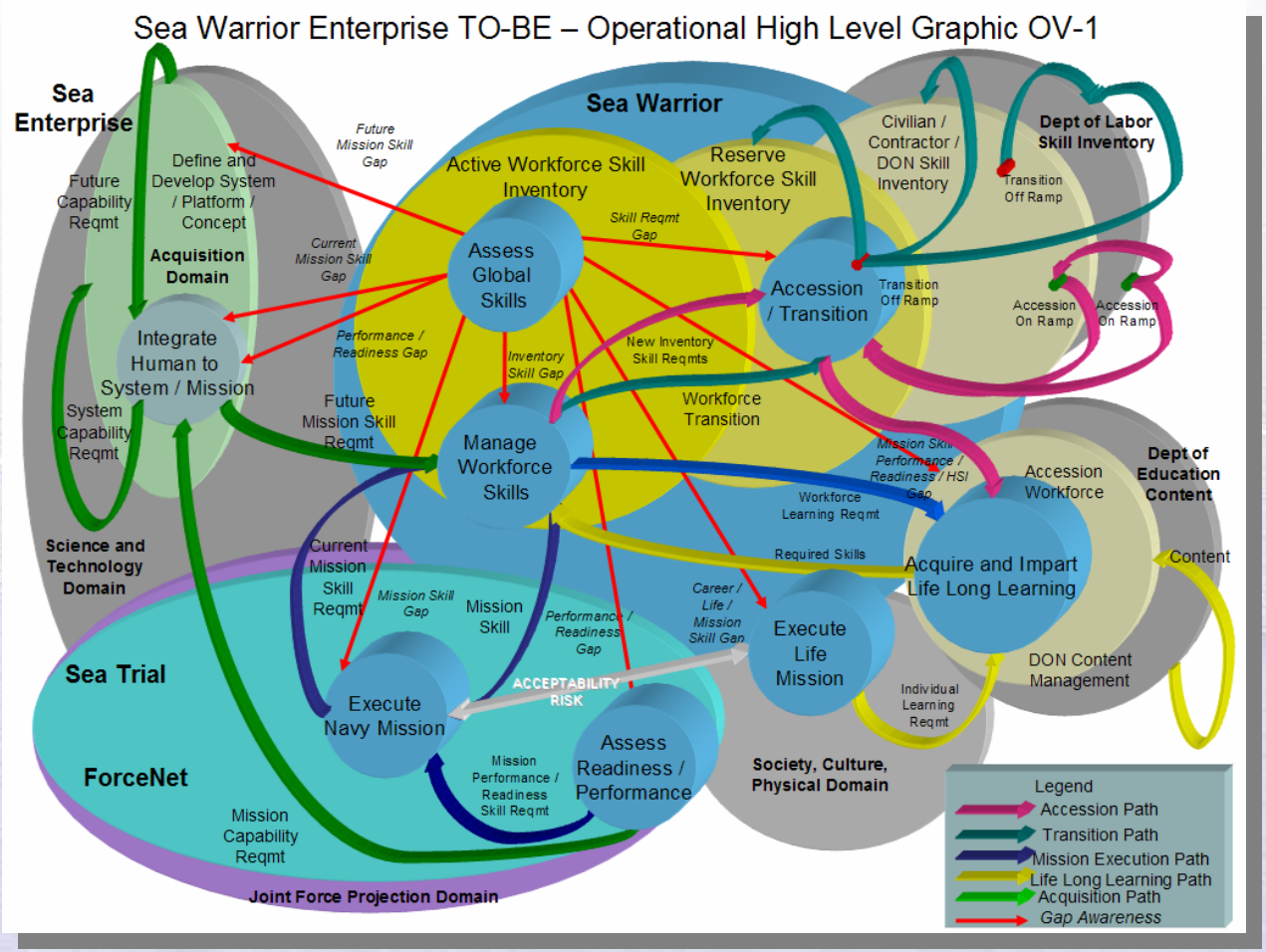

FORCEnet
TFTF
ASN HR
SWCG
Approval Board
Standards WG
S&T WG
Physical WG
Operational WG
SW Architecture
Verification Board
Guidanc
e
SW Architecture
Integration Board
Operational View
Team
System/Technical
View
Team

OV-1 –The Big Picture

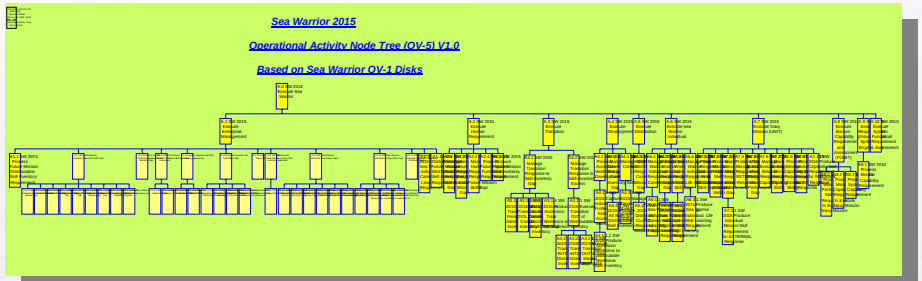
Sea Warrior OV-1

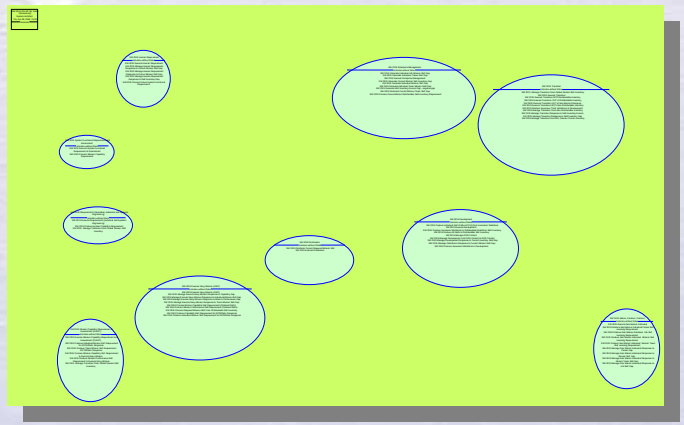


SW OV-1


Sea Warrior Enterprise TO-BE – Operational High Level Graphic OV-1
Sea Enterprise
Sea Warrior
Future Capability Reqmt
Define and Develop System / Platform / Concept
Acquisition Domain
Future Mission Skill Gap
Active Workforce Skill Inventory
Reserve Workforce Skill Inventory
Civilian / Contractor / DON Skill Inventory
Dept of Labor Skill Inventory
Transition Off Ramp
Current Mission Skill Gap
Assess Global Skills
Skill Reqmt Gap
Accession / Transition
Transition Off Ramp
Accession On Ramp
Accession On Ramp
Performance / Readiness Gap
Integrate Human to System / Mission
Inventory Skill Gap
New Inventory Skill Reqmts
Workforce Transition
System Capability Reqmt
Future Mission Skill Reqmt
Manage Workforce Skills
Mission Skill Performance / Readiness / HSI Gap
Accession Workforce
Dept of Education Content
Workforce Learning Reqmt
Science and Technology Domain
Current Mission Skill Reqmt
Mission Skill Gap
Mission Skill
Performance / Readiness Gap
Required Skills
Acquire and Impart Life Long Learning
Content
Career / Life / Mission Skill Gap
Execute Life Mission
DON Content Management
Sea Trial
ACCEPTABILITY RISK
Execute Navy Mission
Individual Learning Reqmt
Assess Readiness / Performance
Mission Performance / Readiness Skill Reqmt
Society, Culture, Physical Domain
ForceNet
Mission Capability Reqmt
Joint Force Projection Domain
Legend
Accession Path
Transition Path
Mission Execution Path
Life Long Learning Path
Acquisition Path
Gap Awareness

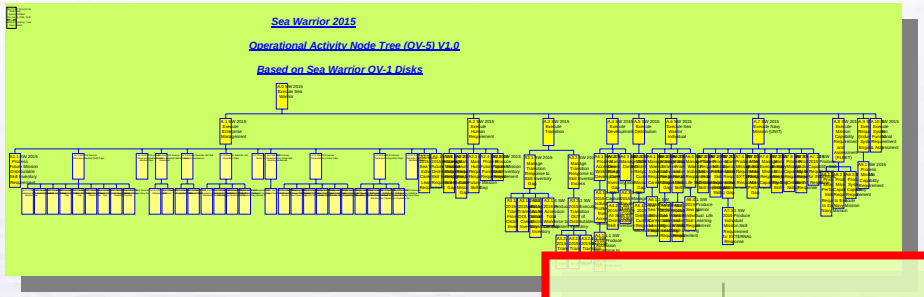
What – How - Where

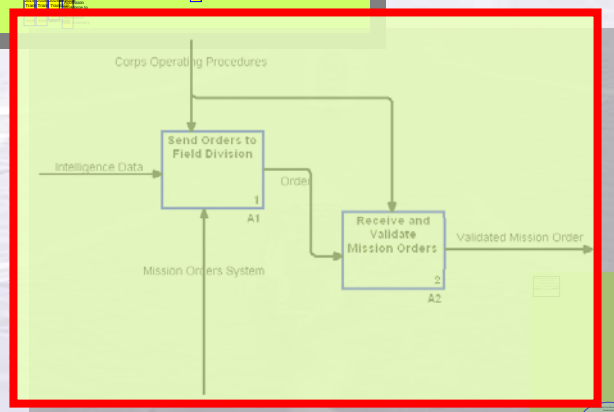


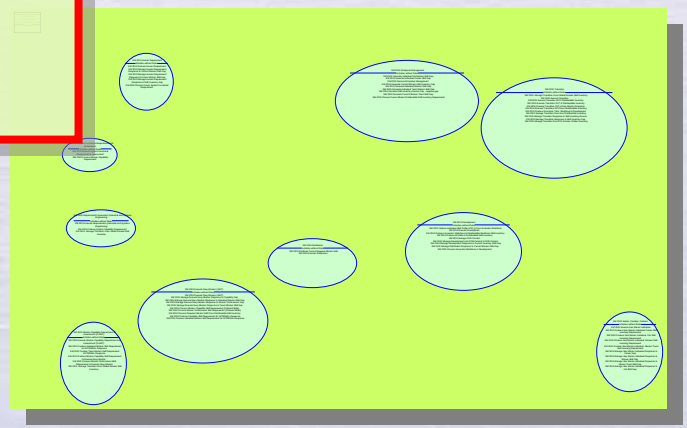


What – How - Where

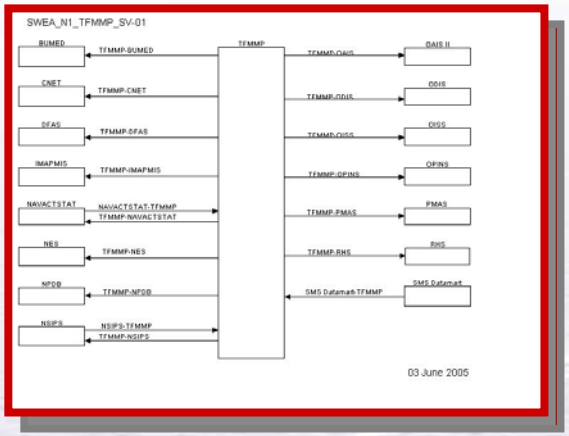
Define the info processes

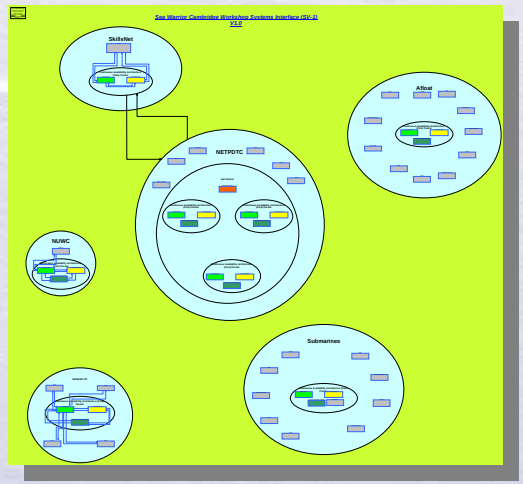






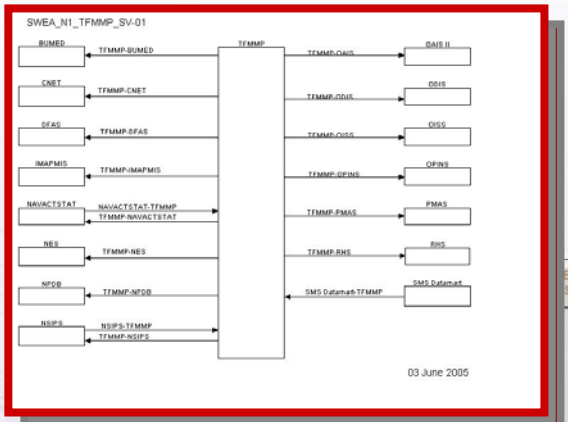
What – How - Where

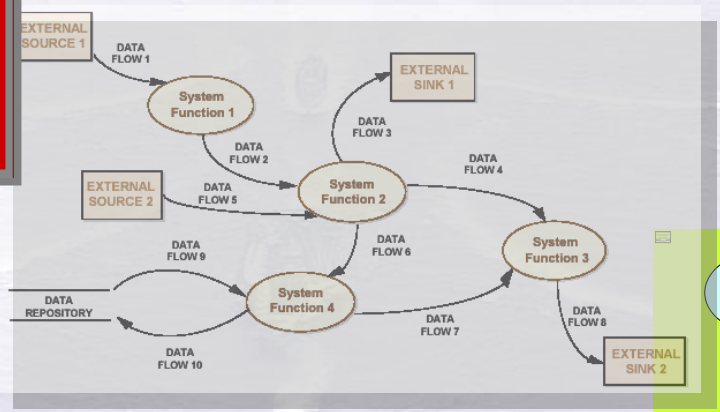


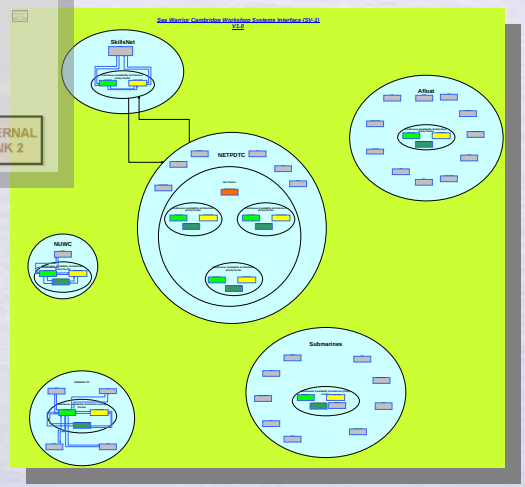


What – How - Where

Define the data flows

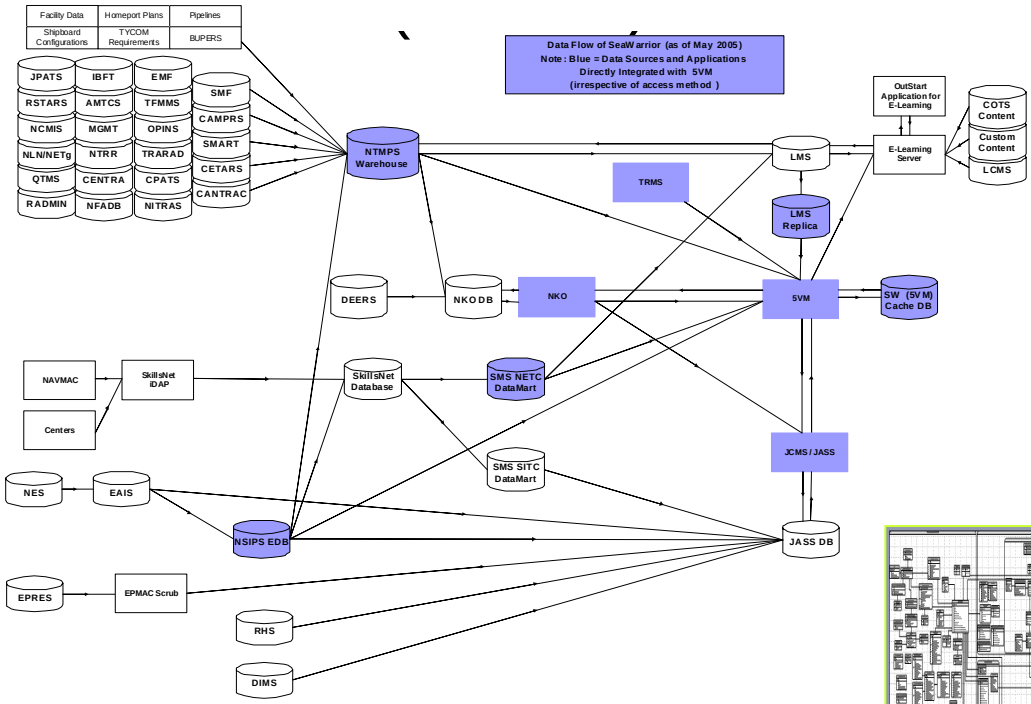


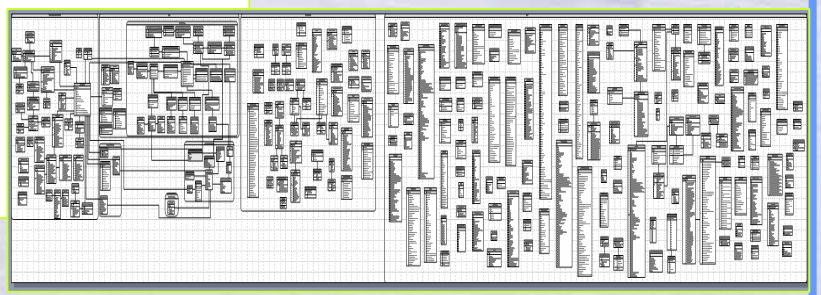




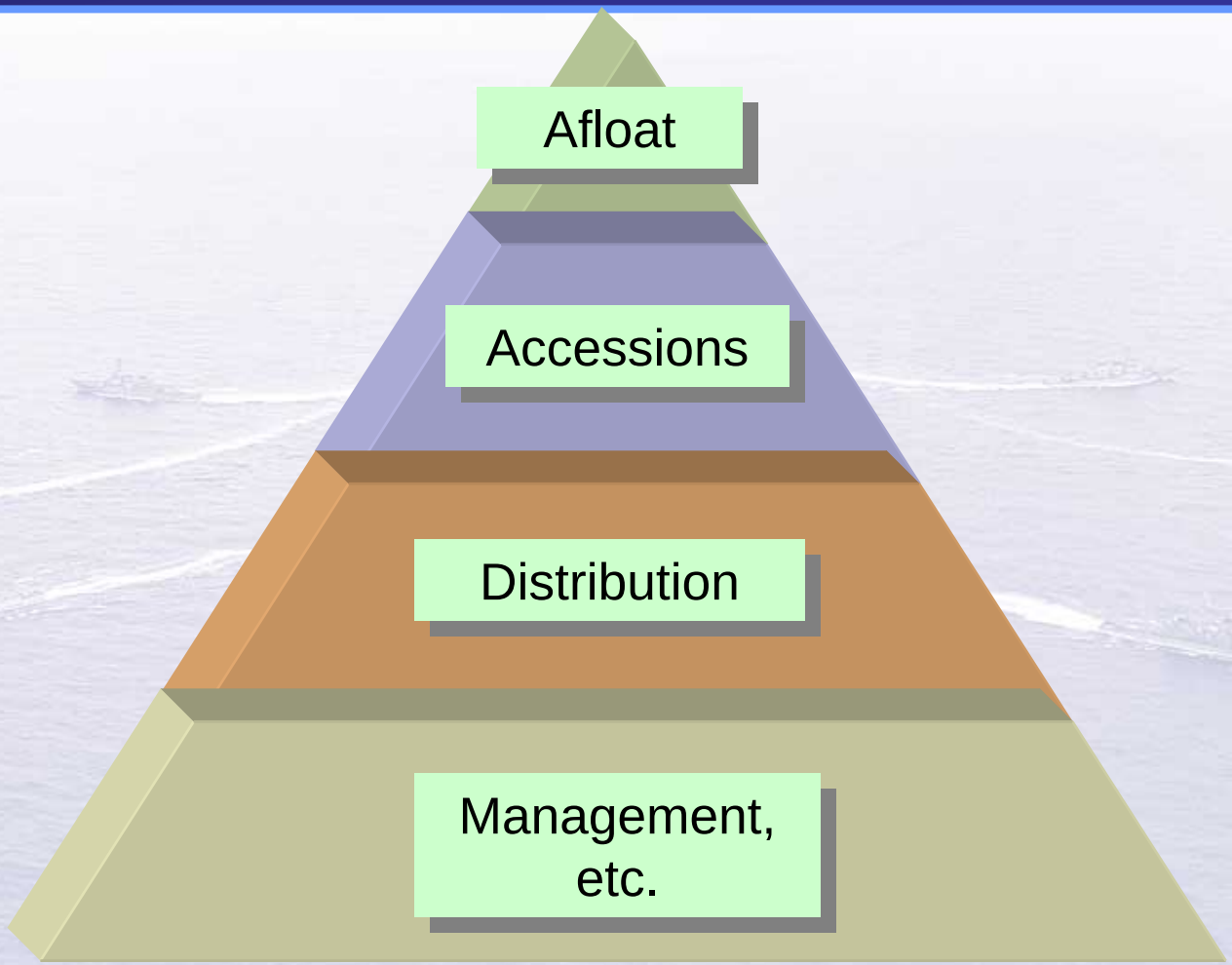
Sea Warrior afloat today

SeaWarrior Data Flow Diagram





The “rest” of Sea Warrior



Where we are going

- Impact POM 08
- Develop Afloat Pilot (spiral 2)
  - Services oriented architecture
  - Putting the HCO to work
- Develop the modernization plan
  - Align ashore / afloat capability fielding

HCO Development

CSFL

SV-4

HCO use case mapped to OP nodes

OV-5

	Contingent Workforce Management	Organizational Development	Maintain Job Profiles	Skills Management	Team or Organization Management	Develop Organizational Measures	Maintain Workforce Directory	Maintain Personnel Capabilities Database	Provide Business Process IT Support	Generate Human Resources Reports	Career Development	Manage Qualification	Create Emp	Co
Review Activity manning document			X											
Assign Activity's Personnel to BIN			X											
Create HCO_R			X											
Manage HCO_I	X		X											
Obtain Personnel Data							X	X						
Assemble HCO_I								X						
Maintain HCO_I								X						
Manage HCO_{R-I} Gap			X								X		X	
Assign HCOI to HCOR						X							X	
Review HCO_{R-I} Gap			X							X	X		X	
Develop Personnel														
Hire/Dehire Personnel														
Manage Personnel within Activities							X							
Distribute Personnel to Activities								X						
Add Organizational requirements to HCOR			X											

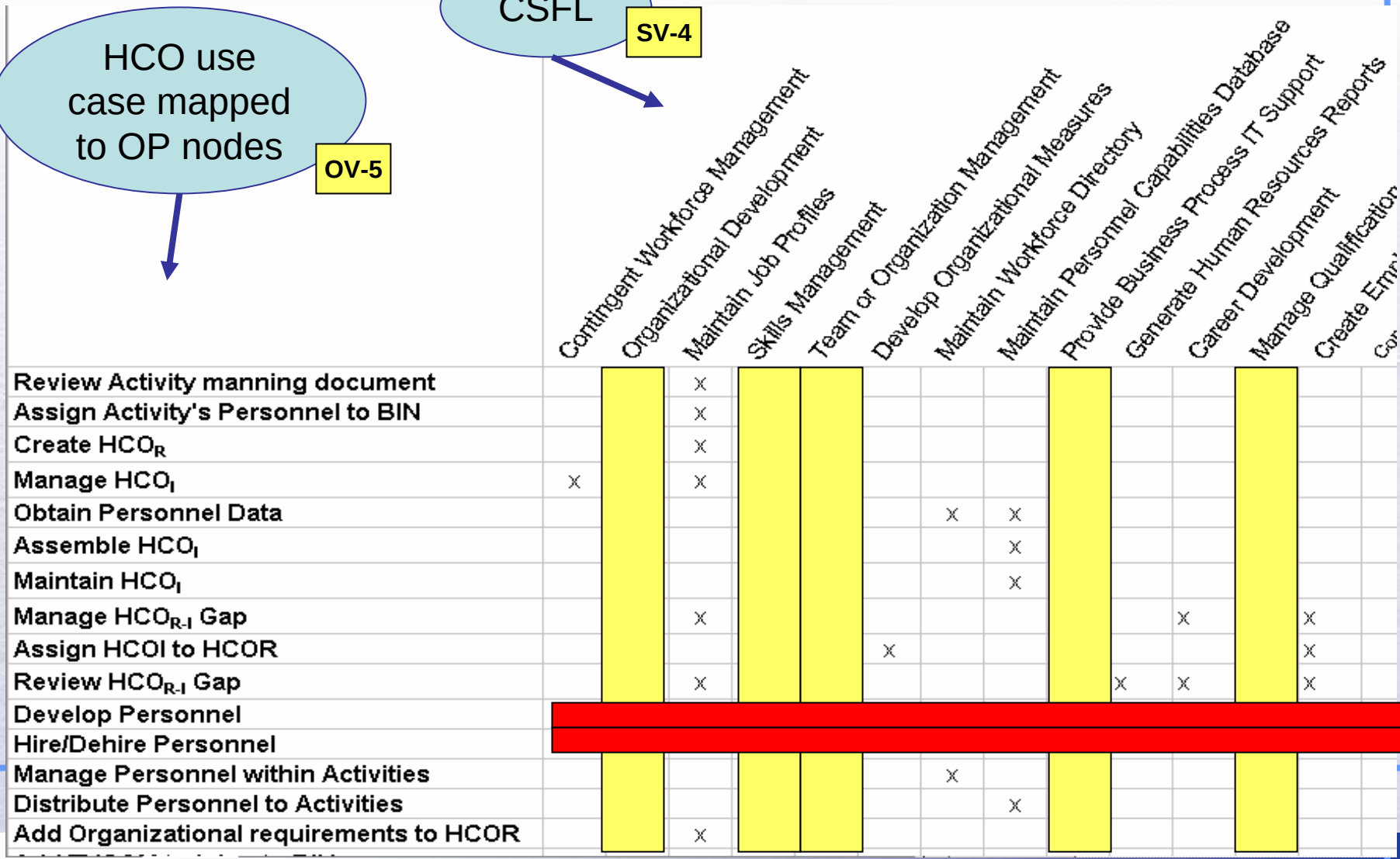
Matrix Gaps

HCO use case mapped to OP nodes

OV-5

CSFL

SV-4



Map to Systems

CSFL

SV-4

HCO use case mapped to OP nodes

OV-5

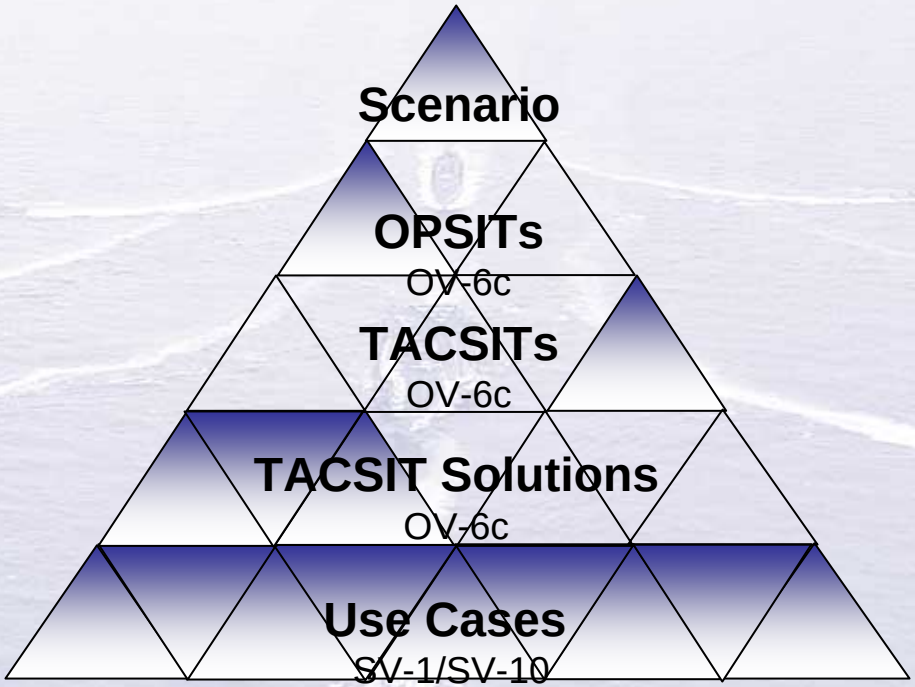
	Contingent Workforce Management	Organizational Development	Maintain Job Profiles	Skills Management	Team or Organization Management	Develop Organizational Measures	Maintain Workforce Directory	Maintain Personnel Capabilities Database	Provide Business Process IT Support	Generate Human Resources Reports	Career Development	Manage Qualification	Create Emp	Co
Review Activity manning document			X											
Assign Activity's Personnel to BIN			X											
Create HCO_R			X											
Manage HCO_I														
Obtain Personnel Data						X	X							
Assemble HCO_I							X							
Maintain HCO_I							X							
Manage HCO_{R-I} Gap			X							X		X		
Assign HCOI to HCOR					X							X		
Review HCO_{R-I} Gap			X						X	X		X		
Develop Personnel														
Hire/Dehire Personnel														
Manage Personnel within Activities						X								
Distribute Personnel to Activities							X							
Add Organizational requirements to HCOR			X											

5VM

TFMMS

EMPRS

Testing the plan



Use Cases as Operational Events

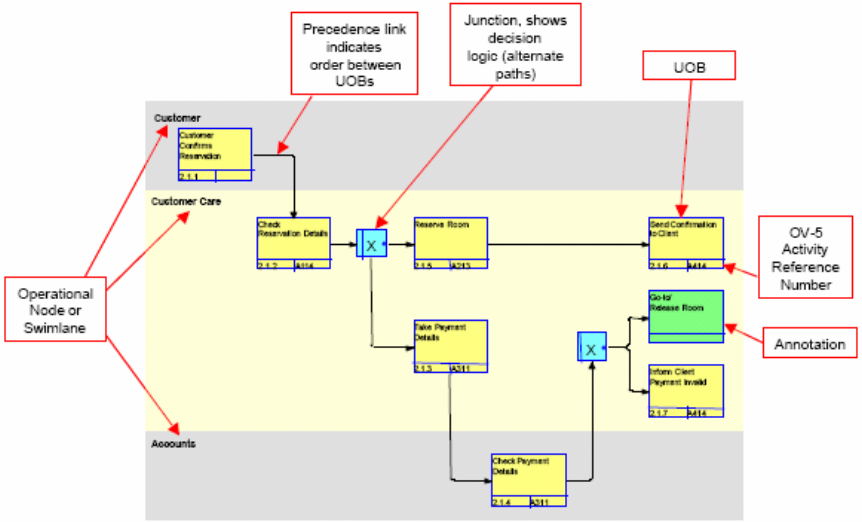


Figure 4-28. Operational Event-Trace Description (OV-6c) – IDEF3 Example

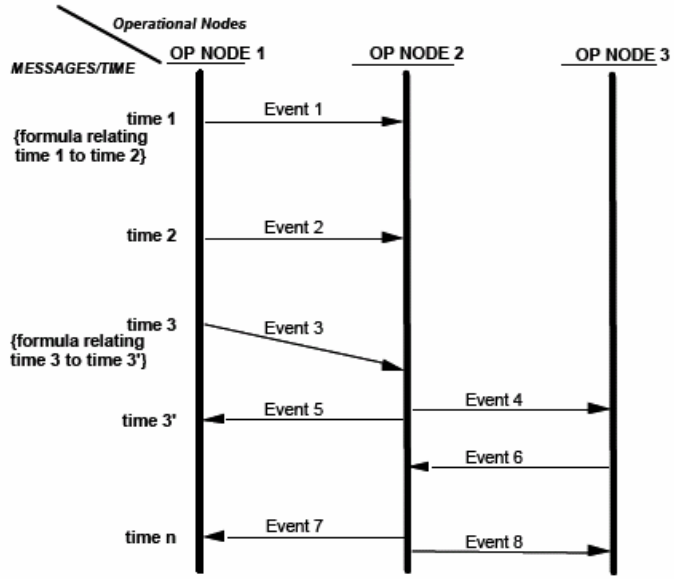


Figure 4-27. Operational Event-Trace Description (OV-6c) – UML-type Template

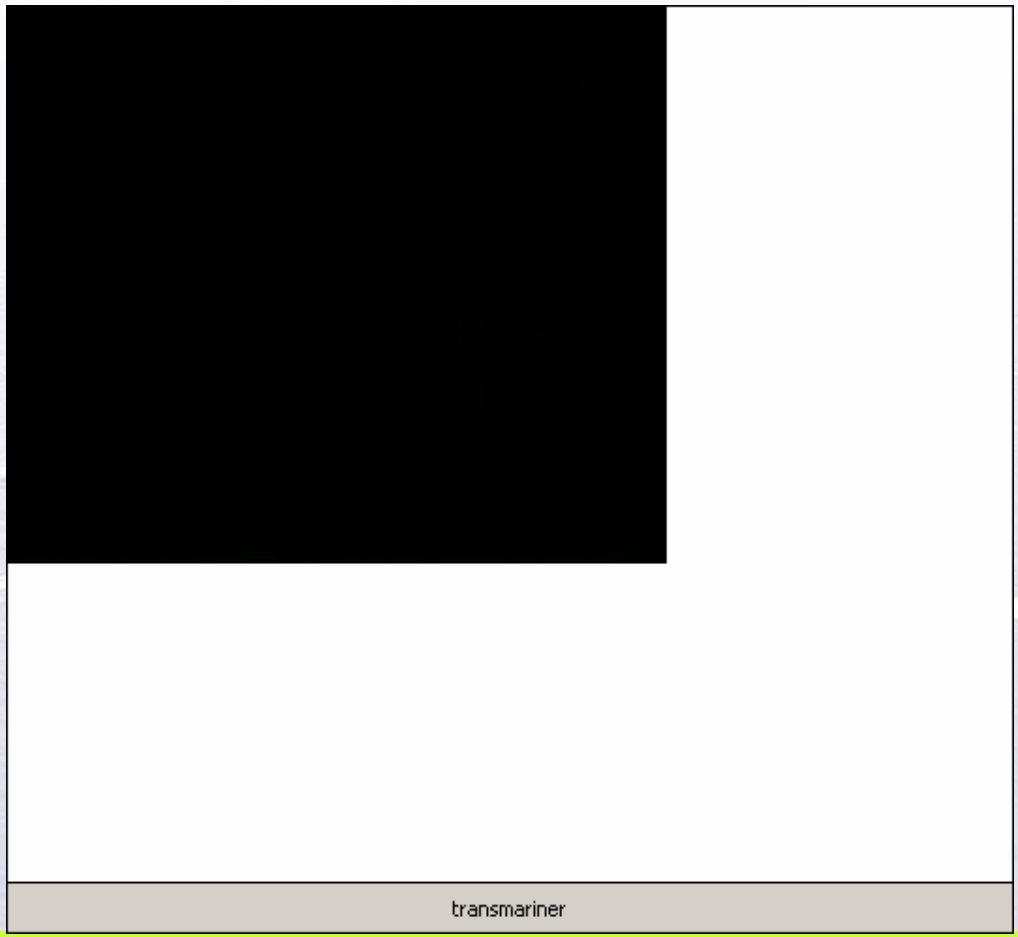
What We Don’t Know

- Alignment with SHIPMAIN
- FCCC
- IT-21 supportability
- POM positive wedge
  - Number of devices and logistics tail
  - Alternate information paths

Risks

- Architectural expertise
- HCO mechanics
- No PE Line

Takeaways



“Systems Solutions to a Business Problem”

Questions ?

Operational Views

Applicable Architecture View	Product Reference	DoDAF Product	Essential or Supporting
All Views	AV-1	Overview and Summary Information	Essential
All Views	AV-2	Integrated Dictionary	Essential
Operational	OV-1	High-Level Operational Concept Graphic	Essential
Operational	OV-2	Operational Node Connectivity Description	Essential
Operational	OV-3	Operational Information Exchange Matrix	Essential
Operational	OV-4	Command Relationships Chart	Supporting
Operational	OV-5	Activity Model	Supporting
Operational	OV-6a	Operational Rules Model	Supporting
Operational	OV-6b	Operational State Transition Description	Supporting
Operational	OV-6c	Operational Event/Trace Description	Supporting
Operational	OV-7	Logical Data Model	Supporting

Systems Views

Applicable Architecture View	Product Reference	DoDAF Product	Essential or Supporting
Systems	SV-1	System Interface Description	Essential
Systems	SV-2	Systems Communication Description	Essential
Systems	SV-3	Systems^2 Matrix	Essential
Systems	SV-4	Systems Functionality Description	Essential
Systems	SV-5	Operational Activity to System Function Traceability Matrix	Essential
Systems	SV-6	System Information Exchange Matrix	Supporting
Systems	SV-7	System Performance Parameters Matrix	Supporting
Systems	SV-8	System Evolution Description	Supporting
Systems	SV-9	System Technology Forecast	Supporting
Systems	SV-10a	System Rules Model	Supporting
Systems	SV-10b	Systems State Transition Description	Supporting
Systems	SV-10c	Systems Event/Trace Description	Supporting
Systems	SV-11	Physical Data Model	Supporting

Technical Views

Applicable Architecture View	Product Reference	DoDAF Product	Essential or Supporting
Technical	TV-1	Technical Standards Profile	Essential
Technical	TV-2	Standards Technology Forecast	Essential